



Climate Action Plan for Operations & Facilities

January 29, 2008

Final Recommendations

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Introduction

The City of San Mateo released its *Greenhouse Gas Inventory* in October, 2007, which set the 2006 baseline for CO₂ emissions. The inventory, or carbon footprint as it is often called, helped the Sustainability Advisory Committee to establish community-wide CO₂ reduction goals. The goals are also applicable to the City's internal operations and facilities and provide the context for this *Climate Action Plan*. This is the third of three documents related to climate change in the City of San Mateo:

1. The *Greenhouse Gas Inventory* (October 2007)
2. The *Sustainable Initiatives Plan* (December 2007). This Plan was produced collaboratively by the Sustainability Advisory Committee and will go to the City Council for consideration in January 2008. This Plan addresses community-wide climate and sustainability concerns.
3. The *Climate Action Plan for Operations and Facilities* (January 2008).

Climate impact analysis and action plans are still in a formative stage and the methodology has not been set. Therefore, all of these documents should be considered within the context of an evolving public policy area. The methodologies for counting emissions are still unsettled for some sources, such as transportation, and a healthy debate about appropriate metrics is needed. Also, new sources of emissions are being identified. For instance, since the inventory was completed, direct access electricity customers have been identified as a source of CO₂ in the community-scale footprint and relevant data has been provided by PG&E. Direct access customers are large businesses and schools that buy their electricity from sources other than PG&E; unfortunately, these other sources of electricity are not as clean as PG&E and so produce more CO₂ per kWh. For the City of San Mateo community-scale footprint, direct access customers represent an additional 1% of electricity use.

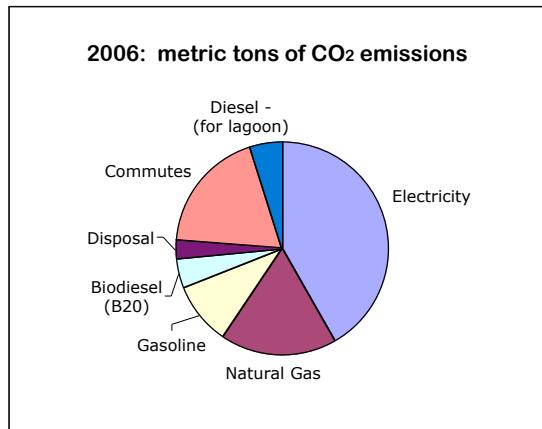
In spite of the uncertainty about these issues, the snapshot of the City that the inventory provides is a useful base from which to get started! It clearly identifies the major sources of CO₂ and shows the relative impacts from these sources. It allows the City to set meaningful goals for reduction and to take action towards reaching them. At the time that the first assessment of progress toward these goals is being done, the 2006 baseline numbers should be recalculated using the most recent methodologies for measuring emissions.

City Departments have already started to assimilate pieces of the *Sustainable Initiatives Plan* into its upcoming workplans. This document will cover what needs to be done within municipal facilities and operations and bridge the gap between the two documents.

The City's CO₂ Footprint for Operations and Facilities

City Operations and Facilities (O&F) account for less than 2% of the overall community emissions but efforts to reduce these emissions indicate the seriousness with which the City is addressing its contribution to global warming.

Within the O&F, the key contributors to CO₂ are natural gas and electricity (59%), fuels (19%) and commuting (19%). Waste disposal makes a small contribution of 3%. The Waste Water Treatment Plant uses 64% of the natural gas and 42% of all the electricity used by the City, which represents about a third of the City's total CO₂ emissions.



Source	Metric Tons
Electricity	4,427.0
Natural Gas	1,864.7
Gasoline	1,015.7
Biodiesel (B20)	463.2
Disposal	328.9
Commute	1,968.5
Diesel	531.5
Total	10,599.6

During the development of the *Climate Action Plan*, the amount of emissions from natural gas was corrected. This number is 269.6 metric tons less than what was reported in the original inventory.

Targeted Reductions

The *Sustainable Initiatives Plan* recommended the following goals for the community-based emissions:

CC 1: Reduce greenhouse gas emissions each year, beginning with 2009 emissions being less than the 2006 baseline and then exceed the 2020 state target (emissions at 1990 level in 2020) and meet the 2050 state target (emissions at 80% below 1990 level). State emission targets are defined by AB 32, the Global Warming Solutions Act of 2006.

Re-evaluate these targets in the year prior to any General Plan revision but no less than every five years in regards to current scientific data and performance to determine if the City needs to increase the targets or its efforts to achieve them and to set interim targets.

If we apply these goals to the City O&F, the targets would be:

2009 emissions < 10,600 metric tons (baseline for 2006)

2020 emissions < 9,724 metric tons (a decrease of 876 metric tons)

2050 emissions = 1,945 metric tons (a decrease of 8,655 metric tons)

The metric ton decreases that are noted above do not reflect any growth in City staff or responsibilities. Added staff or services will increase CO₂ emissions related to the City and therefore, the numbers above should be seen as base numbers, or minimum reductions. In order to reach the goals, the increase in CO₂ that would occur by adding staff or services will also need to be offset.

Can the City meet these targets within its operations and facilities? This *Climate Action Plan* identifies the steps needed to reach the 2020 goals but reaching the 2050 goal will require significant changes in technology and actions taken by others. The City's responsibility will be to continue to implement the new technologies as they become available.

Overview of Recommended Actions

Each department has a responsibility for creating a city that is cognizant of and responsive to sustainability and environmental issues. Each department can ensure that everyone is aware of the City's plan and progress and should participate in the programs that are developed. For instance, Public Works will be providing some commute options and incentives and the Information Technology Department has implemented CPM and virtualization to increase efficiency. Other departments can support these efforts by being aware of the choices, encouraging staff to participate, or, in the case of IT, ensuring that computer sleep modes are not deactivated.

In addition to supporting the actions of the other departments, each department has their own unique set of actions and there are several opportunities for collaborative effort.

City Attorney's Office

Helping to implement the Sustainability Initiatives Plan through legal support is probably the most important action the City Attorney's Office can take. However, the simple action of adding the duplex accessory to their printer could significantly reduce the amount of paper used.

The City Attorney's Office could also investigate what papers must be printed and what could be handled electronically instead. Any effort to review materials electronically and switching to electronic storage of files will reduce paper use and the need for physical storage areas, which could lead to less need for office space in the future. Even ensuring that filing copies are double sided could reduce the need for storage significantly.

Reviewing lengthy legal documents on a computer rather than marking up paper documents with changes and notes may not seem desirable given the amount of time spent reading and reviewing documents. But new technology, such as tablet computers, might make the switch more compelling and the attorneys could work with IT to identify some possible technical solutions to pilot, that would consider the need for confidentiality and convenience.

City Clerk's Office

The City Clerk's Office is already encouraging the City to use double sided copies and to switch from paper to electronic files. They eliminated plastic water bottles in the meetings under their

direction and so are actively setting a good example for the City's efforts towards sustainability. They are encouraged to continue to provide leadership in these areas.

The City Clerk's Office can set a good example for sustainable choices in how meetings are catered or supplied with food and materials and share what they have learned with other departments. A meeting with attention to sustainable details helps inform the public that the city is making an effort and introduces new ideas through example.

There are some larger actions that the City could take to make meetings even more green. For instance, a dishwasher or dish drawer could be installed in City Hall in order to use reusable dishes for many meetings. Meetings could use compostable dishware and silverware if reusable ware is not a good choice. This project would need a champion or group of people willing to investigate and make recommendations based on city needs and other issues. Any dishwashing equipment would need to meet stringent requirements for water and energy use in addition to health standards. Using compostable ware is not a useful alternative unless there is food composting collection at the facility.

The City Clerk's Office along with other departments who coordinate meetings in City Hall could investigate these options and develop a best practices and how-to list for meetings. This information could be shared with departments who sponsor or provide meeting space in other facilities.

City Manager's Office

The City Manager's Office has two main roles in implementing the *Climate Action Plan*. The first is to oversee the implementation – make sure that responsibility for actions is assigned to the correct department and govern any interdepartmental projects. The second is to ensure that the Utilities Manager Pro gets implemented as quickly as possible.

Utilities Manager Pro

During the research for the carbon footprint, it was clear that the information needed to manage energy and water use in the city was not readily available. Therefore, there was no clear picture of energy savings after a project implementation and no warning if the energy use was climbing in a facility. Oversight of bills was also limited to what was reasonable within the accounting system. Implementing the Utilities Manager Pro system (UMP) will support a thorough accounting procedure while giving the facilities staff and departmental management the opportunity to view and understand their energy and water consumption. This system will allow for better management and better reporting.

Gathering the water usage data while doing the footprint and this plan would have required significant staff and consultant time and/or a payment to Cal Water of over \$2,000. Because it is anticipated that Cal Water will require payment to provide the data for the UMP, analysis on water usage within facilities was tabled. Once UMP is fully functional, an analysis of water usage by facility will be easily accomplished.

The implementation of Utilities Manager Pro software will require a joint effort by Finance, IT and Facilities and will benefit all the City Departments by making resource use information easily accessible. There are no direct CO₂ reductions attributable to UMP but it will allow the City management to better understand and manage its natural resource usage.

Department of Community Development

The CDD has a unique role in the City's *Climate Action Plan* because of their responsibility for new buildings. Since they will be implementing a new Green Building Program, which includes requirements for new City buildings to meet LEED Silver standards, they will provide the LEED expertise to the city. One of the recommended actions in this plan is to engage in the process to gain a LEED EB (Existing Building) Silver Rating on the City Hall. The CDD should be part of the team to coordinate this work and could provide the reporting service.

The CDD will also be engaging in programs to reduce energy and/or water use in the community and should be alert for other ways in which to work with other departments on sustainability issues.

Finance

The Finance Department coordinates many functions that are a vital part of the climate action plan and sustainability efforts for the City. This work may exceed the capacity of the existing staff, as this is a small department. However, these projects are key to achieving the CO₂ reductions goals and the ability to track and manage resource use. The City might consider how to provide needed assistance to accomplish these actions.

Utility Management Pro (UMP) Implementation

The Finance Department has a key role to play in providing accessibility to data needed to track and manage resource use. Once UMP is installed and useable, staff working on sustainability and energy projects will be able to use the information to make good decisions regarding energy and water use. Currently, there is no easy way to track the results from efficiency efforts or to do a broad analysis of water consumption. In addition, the UMP will offer better oversight of accounts and costs related to utilities.

The Finance Department is a vital team member in coordinating the implementation of UMP and of all their projects, this should be given immediate priority.

Fleet Management Policy

Fleet maintenance is provided by First Vehicle Services on contract. The manager was eager to help implement some sustainable changes and set up a process for converting to re-refined oil. This will occur when the current supply of oil is depleted. There is also a plan to run a small pilot that will use 100% biofuel in one truck after the new biofuel station opens in San Mateo. This will allow the maintenance team to determine what steps are needed to convert vehicles to 100% biofuel and to evaluate the feasibility of the City moving more of its fleet to 100% biofuel in the future. Not only would this reduce the CO₂ emissions, it opens up the door to run the fleet on a recycled cooking oil product!

The first step for the fleet management is to set a goal of emission reduction and then establish a policy that will make this goal achievable. This will require cooperation and support from all departments. Reduction goals would help the City reach its overall CO₂ reduction goals: reduce emissions to below the 2006 baseline by 2009 and reduce from 2006 baseline by 20% by 2020. Reaching these objectives will be assisted by the state's adoption of stronger emission standards for vehicles.

Developing a fleet policy for the City will establish protocol on how vehicles are chosen – focusing on fuel efficiency, vehicle type related to need, shared vehicles and ensuring that the vehicles driven the most miles are the most efficient. Can the City develop a pool of large vehicles that the departments can share when needed for large jobs, in order to reduce the number of vehicles with low mpg and use the savings to purchase the most fuel efficient models?

Fleet Actions

Objective	Actions	Metric Tons of CO ₂ Saved	Schedule
Reduce emissions below 2006 baseline	Develop Fleet Policy that sets interim objectives for the following:	> 0	2008
Reduce Emissions by 20%	Increase purchase of hybrid, SULEV, EV, PEV		
	Pilot program for B100		After station opens
	Evaluate opportunities to switch to B100		2008
	Reduce mileage by low MPG vehicles		
	Achieve 20% reduction	296	2020
Increased cost of vehicles, decreased cost of gasoline			

Support the Production of Plug In Hybrids!

The City can actively indicate its intention to be as fuel efficient as possible by joining the Plug-In Partners Campaign started by Austin, TX. A Plug-In Hybrid is essentially a hybrid that can also get electricity from the grid. They can get over 100 miles per gallon and can run on electricity alone for short trips. An interesting side note is that because they store electricity in their batteries, they may be able to help power critical services in an emergency. This technology is becoming available and car manufacturers are being encouraged to produce Plug-In Hybrids through government agencies, businesses and individuals joining the campaigns.

To participate, the City would pass a resolution of support and sign a soft-fleet order for Plug-In Hybrids, which sends a message to automakers that there is serious interest in this technology and that they should start producing them! The soft fleet order will not bypass ordinary purchasing procedures and is simply a statement of interest. Many communities have joined this effort, including the County of San Mateo, San Francisco, Sunnyvale and San Jose.

The Plug-In Partner sample resolution is included in the Appendix. More information can be found by downloading the Plug In Partners Packet at www.pluginpartners.org/includes/pdfs/PluginPartnersPacket.pdf or visiting our state organization at www.calcars.org.

Environmental Purchasing Policy (EPP) Update

The City currently utilizes two different approaches to purchasing – (1) a decentralized approach for most large purchases and departmental needs and (2) a warehouse that stores many of the items needed on a regular basis, such as cleaning, janitorial, paper, and office supplies and items like light bulbs, safety items and service-ware (plates, cups and utensils).

A strong EPP is important for receiving grants or LEED Existing Building (LEED EB) Ratings and is a key tool for integrating sustainable actions into the City. The California Integrated Waste Management Board (CIWMB) allocates 15% of their criteria points for grant funding to a current (revised or adopted within 5 years) EPP with evidence of sustainable purchasing and practices.

The City's Environmental Purchasing Policy was adopted in 2006 and provides general guidelines for departmental purchases but no strategy beyond encouragement. The EPP has previously fallen under the direction of Public Works, as it grew out of the work being done on recycling, but the warehouse and purchasing are located in the Finance Department. Therefore, the 2007 action list was developed by Public Works staff, who have no authority for the topics that are covered. The City policy, the 2007 action list, and the CIWMB grant criteria evaluation sheet for purchasing are included in the Appendix for reference.

In spite of the lack of direct responsibility for purchasing and implementation of EPP steps, many of the City departments are choosing best value items, such as low energy use computers. However, there is significant room for improvement and the following recommendations will result in a stronger purchasing program. One action identified on the action list was to investigate using re-refined oil in the fleet. The switch was set-up during the research phase of the carbon footprint and was relatively easy to accomplish once it was given some priority. Many actions have been identified and are in need of a responsible party to oversee implementation.

Updating the EPP to include specifications for some items such as lights, fixtures, appliances, vending machine contracts, etc. would provide more guidance to departments making purchases, but these need to be accompanied by a system that monitors compliance. Items that require energy or fuel use or are related to water consumption need a common reporting system or procedure. This allows purchasing information to be consolidated for future grant or LEED applications and provides a mechanism for compliance review.

For the warehouse items, expanding the inventory database to include fields for the percent of pre- and post-consumer recycled content, salvaged or reused content, energy or water demand information (Energy Star?), VOC content and mercury content in fluorescent bulbs, will provide an easy way to analyze purchases for LEED or grant applications and identify opportunities for improvements. Some items, such as fluorescent tubes, need to be standardized so that there is only one kind of light used in the City, regardless of which facility. As part of the ABAG Energy Watch review, we chose a low mercury lamp to become the standard – this specification should

become part of the EPP. Colored papers and all other paper products should be reviewed for recycled content to ensure that the City is choosing recycled options. The City recycles used toner cartridges but does not purchase recycled cartridges for use; this could be considered.

Specifications like the one for the fluorescent tubes help lower maintenance costs because it becomes easier to replace bulbs, store bulbs and to fix fixtures when they are standardized. Construction projects have many items like this, which could have set standards that take into account the environmental or sustainability issues when being determined. For instance, City Hall has recently had new carpeting installed – what is the recycled content? Did the decision for this purchase consider ease of cleaning or replacement of worn areas? Are the good sections of the old carpet being reused? These are all questions that an EPP manager and committee could address. (LEED uses Green Label Plus Testing Program for carpets and carpet cushion requirements.)

Another example is the vending machine contracts. Every contract is written and held by a different department. PG&E offers rebates for energy efficiency but coordinating this process requires more effort than it is worth. However, establishing specifications for vending machine contracts will slowly replace inefficient machines and will transfer the responsibility of efficiency to the vendor. Energy Star provides purchasing and procurement language at: http://www.energystar.gov/index.cfm?c=vending_machines.pr_proc_vendingmachines

Process for developing strong EPP program

Objective	Action	Schedule
Assign responsibility for EPP implementation	Establish responsibility and needed support within the Finance Department	2008
Better reporting	For warehouse inventory, set up data collection to list % pre- and post-consumer recycled content, salvage or reuse, low VOC, energy and water requirements.	2008
Develop EPP Team	Could be the Climate Action Team or similar structure of staff from various departments that are affected and that have the expertise to make recommendations	2008
Review 2007 Action List and assign each item	Create EPP workplan;	2008
Develop consistency	Produce purchasing binder with specifications or section on the Intranet for reference to City requirements.	2008
Continual review and improvement	Set up process for semiannual meetings to review progress and identify new actions.	Ongoing

Convening a purchasing committee to implement the 2007 action items and to identify additional improvements will strengthen the implementation of an updated policy. This committee could also produce binders of specifications and information for the individuals responsible for purchasing in their departments or provide a section on the Intranet for reference. The key is to establish consistency of purchasing habits, whether through the warehouse, individual department orders or through contracts.

The following websites have comprehensive information on environmental purchasing and products: www.green.ca.gov/EPP/ ; www.energystar.gov/ ; www.epa.gov/epp/

An Energy and Water Efficiency Fund

Two factors will influence the City's ability to achieve the most stringent CO₂ reduction goals. The first is improvement in technology that will make innovative solutions available and cost effective. The second is a commitment by the City to take needed steps and to have a dedicated funding source. As CO₂ reduction projects are completed, it is quite possible that the cost per tonne to reduce emissions will increase. For instance, adding solar photovoltaics is a costly endeavor but one that completely eliminates emissions related to the electricity generated. What can the City do to make these types of projects more financially accessible without creating undo administrative burden?

The Finance Department, in conjunction with Public Works could establish a fund from rebates and energy and water savings that will be used to further reduce energy and water costs in the City. As each major efficiency project is completed, the rebates and an estimate of annual savings (for an agreed-upon number of years) from the project would go into the Efficiency Fund. Additional funds or grants could be allocated to the Fund when appropriate. The Fund would be used to help pay for more expensive projects than the City can easily absorb financially. The Fund would not be used for routine energy efficiency projects that have short paybacks, as these are easily funded and justified as cost-effective. The Fund would be there for the next big project that supports the goal of CO₂ reduction but which is too expensive to do easily.

There are many creative ways to finance efficiency and renewable projects in the City and many projects that need to be paid for. The Finance Department can assist Public Works or other departments in ensuring that projects get funded easily and that the climate action work is not slowed down due to lack of funding. Active involvement of the Finance Department in developing funding solutions will greatly benefit the efforts of the City.

Fire Department

The Fire Department has been using B20 (a 20% biofuel, 80% diesel) in their vehicles for several years now, although this was not widely known. In addition, the emergency generators are run on B20. Using B20 instead of diesel reduces CO₂ emissions by about 15%.

The first Prius hybrids have been purchased for the Fire Department this year for use by the fire inspectors. Choosing non-emergency-response vehicles for fuel efficiency rather than speed is a good step for the department.

The Department is also doing some window replacements, which will make heating more efficient. Future new buildings and renovations should all be built with consideration for energy and water conservation and sustainability. If the City adopts the *Sustainable Initiatives Plan* recommendations for green building, these fire stations will need to be designed and constructed to LEED Silver standards.

The Fire Department is responsible for ensuring the fire hydrants are functional, although this responsibility is delegated to Cal Water. However, the water used to test hydrants near city property is paid for by the City as the hydrants are included in City water accounts. It would be useful for the Fire Department to review the process for testing the hydrants and insure that excess water is not being wasted and for the usage to be separated from facility usage for analysis purposes.

Human Resources

The Human Resources Department has several roles that could influence the Carbon Footprint for the City. The first is their role in supporting alternative work schedules and arrangements in relation to facility hours of operation and customer needs. Eliminating commutes through alternative schedules or telecommuting, even on an occasional basis, would reduce the CO₂ from the commute. Each mile that someone does not drive eliminates about one pound of CO₂! HR could ensure that supervisors are trained in how to develop a work program and goals for staff interested in alternative work schedules and telecommuting, so that initial efforts are successful.

HR departments traditionally are large users of paper and therefore, are encouraged to explore how the number of copies can be reduced and set policy on making them all double-sided or reviewing documents electronically. The department has a great start on this – they have a successful electronic application review process that eliminates most of the copies related to the hiring process. Since they have created a best practices approach for the hiring process, the challenge can be to explore other processes that involve paper use and balance the need for confidentiality and convenience with electronic review and storage. As they work these issues out, developing a best practices document would help other cities, as many struggle with the same issues and most continue to use large quantities of paper.

HR also generally provides mandatory staff trainings on specific performance topics such as sexual harassment, safety, etc. The City could demonstrate leadership by having HR develop or implement a short training program that supports the City's sustainable goals or offers guidance on how to operate a green office. Public Works could be invited to provide an overview of City expectations in regards to sustainable actions by employees (recycling, carpooling, less energy use, etc.) at the quarterly new employee training. Expanding desktop training, especially for mandatory trainings, will help to reduce resource use and costs related to providing training.

And finally, HR provides a lot of food and water for trainings and oral boards. Eliminating the use of bottled water is a quick action that can be taken. Working with the recycling coordinator in Public Works and the City Clerk's Office, HR could make the meals less wasteful through utilizing compostable dinnerware if there is an opportunity for City Hall food waste to be included in the composting collection service. Departments who utilize catering could collaboratively develop a best practices list and a list of providers who meet the requirements. For instance, some caterers will provide food on reusable platters, which they pick up after an event.

Information Technology

IT has been busy taking advantage of some PG&E rebates and is just completing two projects: the implementation of computer power management (CPM) on all city computers and server virtualization. The savings from these two programs are included in the following chart. IT already purchases the most energy efficient computer equipment and stays on top of these issues when reviewing new models.

Planning for new server rooms in new buildings, such as the new Police Station, should be done in conjunction with the design team, as a reduction in server utilization will result in lower cooling needs, and therefore smaller, more energy efficient air conditioning units can be installed.

IT Actions

Action	Annual KWH Saved	Metric Tons of CO ₂ Saved	COST (after rebate)	Annual Savings from energy reduction	Schedule
Server Virtualization (Removing 25 Servers)	79,600	16.57	\$85,050	\$12,829	Done!
Computer Power Management (550 computers)	101,200	21.07	- \$5,500	\$16,310	Jan.-Feb. 2008
Totals	180,800	37.64	\$79,550	\$29,139	
Payback period 2.7 years ~~~ \$774/metric ton reduction					

Libraries

The new Main Library is a LEED building, although the level is still not determined. It is vital that the department monitor the energy and water use and ensure that the building performs as designed and develop a plan for adding solar photovoltaics to the roof. Sharing information on the building's performance and adding renewable energy are public education actions in addition to being conservation strategies.

Two years after the award of a LEED rating, the library can start the process of a LEED EB (existing building) rating at no charge. If the City is already engaged in the LEED EB process for the City Hall, this might be a fairly simple process as the City will be in the process of developing the needed policies and practices. (More on LEED EB under Public Works.)

The other role for the libraries is education. In addition to the quarterly environmental programs that are scheduled and the environmental education center in the Main Library, the library could partner with the American Institute of Architects (AIA) Chapter in identifying and providing needed technical or informational materials to professionals and therefore, encourage greater understanding of green building and engineering practices in the county.

The libraries would be good partners for informing the public of any programs developed by the City to promote sustainability. For instance, if the City does the BE 1 recommendation in the

Sustainable Initiatives Plan – executes a sampling of existing housing and then develops a program to implement efficiency improvements to the water or energy equipment, the library could provide display room and informational panels to inform the public of the new program and its value.

Parks and Recreation

The Parks and Recreation Department has instituted various water reduction strategies over the years, including weather controlled irrigation and efficient pumps. Diesel equipment uses biodiesel provided by the Corporation Yard. There are, however, several places where new actions can be considered: pool heating upgrades, landscaping or plant choices, increased recycling and educational opportunities for residents.

Pool Upgrades

The Parks and Recreation Department is the second biggest user of natural gas due to heating the swimming pools and providing hot water in shower facilities. Several upgrades to the pool facilities are recommended later in this document as part of the efficiency plans (under PW Package 1).

Landscaping Choices

Parks can offer opportunities for residents and businesses to experience sustainable landscaping practices through landscape design that focuses on reduced water demands and sustainable approaches such as native plants or permaculture. Decreasing water use is not only a conservation practice but it also reduces the energy used to transport and treat the water before it comes out of the tap and can therefore be considered a step to reducing CO₂ emissions. The Parks and Recreation Department is responsible for most of the landscaping at City facilities and is therefore in a good position to recommend landscaping that will reduce water demand.

The City should give serious consideration to establishing a conversion timetable to convert turf fields to synthetic turf for its major athletic fields, which will not only save water, fertilizer, staff time and fuel but also expand user capacity. Currently, the fields are mowed 48 times a year, using two gallons of biodiesel with every mow. More significantly, water consumption to maintain a field requires over two million gallons per year. The following table shows the benefits of switching one field to synthetic turf. The Department will need to determine which of its 18 athletic fields would be good candidates for synthetic turf and do a detailed life-cycle cost benefit analysis before deciding to move forward.

Parks Package 1:

Facility	Action	HCF* of water saved	Gallons of B20 saved	Metric Tons of CO ₂ from fuel	Cost	Annual Savings	Schedule
Any soccer field	Replace with synthetic turf	3,687	96	.78			~
* 3,687 HCF = 2,757,876 gallons;							

(The water and B20 numbers are based on information provided by Parks Landscape Maintenance.)

Landscaping plans for facilities should include operational cost studies that will identify places where water use can be reduced and where landscaping can provide learning experiences for the public. For instance, landscaping around City Hall could include native plants, drought tolerant landscapes and permaculture demonstrations and these could be used by planning as living examples to educating permit applicants about their landscaping choices.

Parks Recycling and Composting

One of the two most frequent public comments offered during the process of the *Sustainable Initiatives Plan* was for the City to have better recycling in public places, such as parks and downtown. (The other topic was bicycling issues.) Reducing the amount of waste generated in the parks by providing more opportunities to recycle will reduce the City's footprint as well as provide service to the public. This can be accomplished through additional recycling cans, more efficient service by the recycling company or increasing the variety of materials for collection. The Public Works section of this *Climate Action Plan*, has a recommendation for a goal of 50% measured diversion of waste (Q1 of 2007 was at 30%); improving recycling within the parks would support this goal.

Other areas that the department could look into:

- Establish on-site composting and/or mulching of green waste.
- Develop a best practices plan for disposing of invasive species.
- Increase the purchases of playground and picnic area equipment that is made with recycled material.

How do landscaping and green waste relate to global warming? The natural cycle of decomposition and new growth is considered a short CO₂ cycle – the CO₂ produced is offset by the new plants and so it does not add CO₂ to the atmosphere. A hierarchy of impacts would be:

Zero emissions: Grasscycling, on site mulching, composting or reuse. Any CO₂ produced during this process is reabsorbed into the plant growth that is supported by the process.

Some emissions: transportation of greenwaste to a composting facility. The transportation produces CO₂; a well run aerobic composting process will not produce methane and is therefore considered an appropriate solution.

Most emissions: Transportation to a landfill for disposal or use as ADC. In this case, both the transportation and the production of methane in the landfill produce problematic emissions. Taking organics to Ox Mountain Sanitary Landfill should be avoided, if at all possible and therefore, a thorough understanding of how to eliminate invasive species is needed, if they are handled in the City. A landfill is an anaerobic system and so any organic material that would produce short cycle CO₂ in a natural setting will instead produce methane, which has 23 times the effect on the climate as CO₂. Disposal of greenwaste in a landfill or use as ADC is not considered a solution at all – the Parks Landscaping Division and Public Works Recycling should identify any sources of greenwaste that are being disposed or used as ADC and make appropriate changes.

The City should also routinely evaluate its Integrated Pest Management program against current scientific data to ensure that recent information on the effects of herbicides such as Glyphosate are considered and that current best practices are in use. This is a changing field and new information is released regularly on the effects of different products. The best solutions are often found in the choice of landscaping and how the area is developed before it needs to be maintained.

Educating the Residents

The recreation programs and the libraries are the two main avenues for the City to provide educational opportunities to the public. Recreation is engaged in the fitness and health of City residents and could expand their efforts to support programs being developed by Public Works that encourage bicycling and pedestrian travel. Choosing different modes of travel will increase health and fitness and so these are natural partners.

Recreation offers programs for seniors, who often have homes that are not energy efficient and who could benefit from educational programs on increasing the efficiency of one's home and taking advantage of reuse opportunities. These topics would also be of interest to the general public.

If sustainability will be a priority for the City, the Recreation Program should reflect this priority in their course offerings. There are many nonprofits willing to assist with the development of a strong program aimed at reducing energy and water consumption, exploring ideas of sustainability, offering small active support groups on sustainable action and providing the link between recreation, health and the environment.

Parks Equipment

Parks has an interesting opportunity to reduce small motor equipment use or provide cleaner landscaping equipment, such as mowers, leaf blowers, chippers, etc. Motors that run on diesel already use B20, which is a good start. But different policies on handling landscaping (eliminating leaf blowers, for example), and considering maintenance, fuel and water costs in developing long term landscaping plans might reduce the amount of use the equipment gets. When making purchasing decisions, evaluating the different CO₂ impacts from equipment would allow decisions to be made that are based on climate concerns.

Police Department

The key step for the Police Department to help reduce the City's carbon footprint is related to the fleet purchases and miles per gallon on their vehicles. Traditionally, police departments purchase the least fuel efficient vehicles in a city and then drive the most miles, so there is usually room for improvement. In San Mateo, the effort to switch to more fuel-efficient vehicles has already begun. This year another big step was taken.

The Police Department just purchased their first three fuel-efficient hybrid vehicles for use by non-responding officers, which will increase the efficiency of the fleet and decrease the amount of gasoline used. The new process of choosing hybrids or ultra-low emission vehicles depending on what they are used for and considering flex fuel options supports the need for public safety while making climate friendly decisions.

Police presentations on driving and safety can make the connection between global warming and driving habits that reduce fuel usage and therefore, CO₂ emissions. Driving the speed limit, properly inflated tires, and not driving aggressively all save fuel and each gallon saved reduces the CO₂ emissions by 19.43 pounds! More information at:

<http://www.fueleconomy.gov/feg/driveHabits.shtml>.

The Police Station that is under construction has been designed to LEED standards and should be energy and water efficient. Special attention should be paid to the server room and other areas of the building that are regularly high energy use areas to ensure that they are designed as efficiently as possible and perform as designed.

The Police Department participates in the City's recycling program and provides a program for the public to bring in pharmaceuticals for disposal, therefore keeping them out of the wastewater and ultimately San Francisco Bay. A program like this, which supports the goals of multiple departments and also the environment, is a good model for future sustainability projects.

Public Works

The Department of Public Works has the majority of the *Climate Action Plan*'s specific projects for implementation, including energy efficiency upgrades, biodiesel for pump engines, upgrades to the Waste Water Treatment Plant system, waste and recycling projects, and commuting options. These are divided in several packages:

Energy Efficiency

The Facility Manager has been partnering with ABAG Energy Watch for two years to strategize and evaluate energy savings actions. This year, because of the increased attention on the impacts of energy use to the climate, ABAG Energy Watch helped to identify and evaluate a strong list of potential actions that the City could take. ABAG Energy Watch also provided information on the California Energy Commission loan program, which can fund the energy efficiency measures with payments based on energy savings. However, the *Climate Action Plan* breaks down the efficiency work into packages and given the relatively modest cost and short payback period, the initial work can be funded directly by the City and reimbursed by the resultant energy savings.

As mentioned in the *Greenhouse Gas Inventory*, the City has actively pursued energy efficiency projects over the years and that proactive approach, along with increased energy efficiency in equipment and appliances, has kept the City's impacts from energy use at a fairly flat level. The projects suggested in this report represent the latest in technology improvements and opportunities. We can expect that the Facility Division will continue to identify opportunities for energy reduction projects and will need Council and financial support to continue to take advantage of new ways to reduce CO₂ emissions related to energy use.

The following tables represent different packages of actions that will need council approval. PW Package 1 contains the "low-hanging fruit" options: lighting retrofits and other actions that will reduce CO₂ by over 140 metric tons/year with a payback of less than three years, based on the preliminary numbers. ABAG Energy Watch and Facilities are completing detailed audits and estimates for these actions; some projects will be scheduled for direct installation. Window replacement for the City Hall is included here, rather than Package 2, because this should be done for both efficiency and comfort whether or not the City decides to proceed with LEED EB.

PW Package 1: Facilities, Parking Garages – Energy Efficiency

Facility	Action	KWH or Therms Saved	Metric Tons of CO ₂ Saved	Cost (after rebate)	Annual Savings from energy reduction	Schedule
Joinville Pool King Center Senior Center City Hall Garage Central Tennis Court Garage Corp Yard Fire Stations (3)	Direct Install Lighting Retrofit	46,424 kWh	9.66	\$17,429	\$6,964	2008
Transit Garage Main Street Garage 2 nd & ECR Garage	Lighting Retrofit	126,321 kWh	26.30	\$50,984	\$18,948	2008
City Hall	Lighting Retrofit	27,862 kWh	5.8	\$22,254	\$4,179	2008
Senior Center City Hall	HVAC upgrades	35,576 kWh 2,293 therms	7.41 12.17	\$5,145	\$7,629	2008
King Center Joinville Swim Center	Solar Pool Heating and operational improvements	90,678 kWh 10,252 therms	18.88 54.40	\$33,280	\$23,854	2008
City Hall	Windows	10,532 kWh 1,292 therms	2.19 6.86	\$59,767	\$2,872	2009
Totals			143.67	\$188,859	\$64,446	
Payback period 2.9 years ~~~ \$1,315/metric ton reduction (kWh, costs, cost savings provided by ABAG Energy Watch)						

The technology for LED lighting is rapidly improving and prices will be dropping quickly as the market picks up. Public Works is reviewing some options for using LED and may determine that it is a viable solution for some lighting retrofits as they move forward. Expect to see some LED solutions over the next few years and to see major reductions in energy demand from the use of this technology.

LEED EB – City Hall

LEED EB (Existing Building) is part of the suite of green building assessment tools from the US Green Building Council, as is LEED for New Construction, which is being used to evaluate the Main Library and to design the Police Station.

LEED EB identifies and rewards current best practices and provides an outline for buildings to use less energy, water and natural resources; improve the indoor environment; and uncover operating inefficiencies. A commitment to go for a LEED EB rating would provide the City with a template for greening facilities and operations and monitoring the outcomes while providing acknowledgment for a job well done!

In December 2006, Adobe Systems of San Jose became the first organization to have three LEED Platinum buildings. They took a proactive approach to their three high rise buildings and utilized the LEED EB system, Adobe reduced electricity use per occupant by 35%, natural gas use per occupant by 41%, domestic water use by 22%, irrigation by 76% and CO₂ emissions by 16%. Even more impressive is that 20% of its employees use public transportation. A full article on Adobe Systems, from which these statistics were taken, and written by George Denise, CFM, CPM, General Manager for Client Solutions Group of Cushman and Wakefield, can be found in Consulting-Specifying Engineer (Dec. 2007). www.csemag.com/article/CA6512579.html

Clearly, going for a LEED EB rating would require full management and Council support and would require budget for staff time to manage the project and for specific projects. Adobe's return on investment of 121% should allay concerns of lengthy payback. The solutions needed for the City Hall will be different and on a smaller scale than what was needed at Adobe but the approach is quite similar.

Implementation of LEED EB for City Hall would benefit all the facilities in the City because many of the LEED actions require policy development. The process itself would ensure that the City implements the needed policies over the next few years. The award of a LEED rating would reflect that the City would then have a set of sustainable policies and is monitoring its environmental impacts and natural resource use. It sets up a process for continual improvement in these areas. Some of the policies and practices that may need to be developed or refined over the next few years include: Environmental Purchasing Policy; Site Sedimentation and Erosion Policy; Stormwater Management Plan for the site; a comprehensive best practices preventative maintenance program; documentation of overall building operating costs; Indoor Air Quality Management Policy; and low-impact Environmental Cleaning, Cleaning Equipment and Indoor Integrated Pest Management Policies. Many of these could be developed for the City as a whole, and some that are more site specific would establish a good example for other facilities to use, as needed.

A LEED EB checklist that identifies the accessible credits for City Hall is included in the appendix. A LEED rating is based on earning a specific number of credits, which have points associated with them; the four levels of LEED are Certified (32 –39 points), Silver (40-47 points), Gold (48-63 points) and Platinum (64-85 points).

The calculation of energy points for the main energy credit (Energy Credit 1: Optimize Energy Performance) is based on an Energy Star Rating on the building. An Energy Star Rating compares energy performance of similar buildings and recognizes the top 25%. Right now, the City Hall would earn an Energy Star Rating of 79 (out of 100), which indicates that care has been taken to keep improving the energy systems with evolving technology.

An Energy Star Rating of 79 gives City Hall five LEED energy points. Increasing the Energy Star Rating to 83 will be accomplished by the window replacement and to 87 by redesigning the HVAC system and doing the other energy efficiency actions in PW Package 1. An 87 Energy Star Rating will give City Hall two additional LEED energy points.

A 95 rating can be achieved by adding solar photovoltaics. In comparison, the Adobe LEED platinum buildings are rated at 98, 100 and 100. (more information on Energy Star Building Ratings is available at: http://www.energystar.gov/index.cfm?c=business.bus_bldgs)

PW Package 2: LEED EB energy items

Additional LEED Points	Action	Energy Saved	Metric Tons CO ₂ Saved	Cost (after rebate)	Annual Savings from energy reduction	Schedule
2	Redesign HVAC system; upgrade existing equipment	Unknown until designed				2008 – 2010
1 energy performance 4 renewable	Solar Installation	160,600 kWh	33.43	\$700,000	\$24,090	Future*
* cost and savings will change depending on when project is done						

Package 2 only includes the items that are energy related. There are many reasons to pursue LEED EB that are not directly related to climate change issues but that support the Council's interest in sustainability, just as there are many reasons to pursue the energy savings even without going for LEED. The next steps, should the council decide to recommend LEED EB, are covered in this outline:

1. Registration for LEED EB, assignment of project management responsibility
2. Form a LEED EB Team – consisting of individuals and departments who have the expertise needed to accomplish LEED EB and those who will be affected by changes in operations and procedures. The Team would benefit from a LEED accredited professional (which might provide an incentive for an employee to achieve this accreditation), or which could be achieved through participation by a LEED AP consultant.
 - a. Project Manager and other interested staff attend LEED EB Technical Training when locally available (or City collaborates with USGBC to provide local training.)
 - b. Review changes to latest version of EB (changes due in 2008) in relation to the LEED checklist that is attached and update.
3. Overall Implementation Plan
 - a. Set up implementation and tracking systems that
 - i. Identify and correct shortfalls in performance to meet LEED-EB requirements
 - ii. Identify and capture opportunities for continuous improvement of performance to meet LEED EB requirements.
 - b. Agreement on what LEED credits to work towards
 - c. Time line for different projects; LEED recommends dividing them into (1) immediate implementation actions; (2) implementation within one year actions; and (3) eventual implementation actions.
 - d. Staff assignments for different tasks
4. Start Implementation with immediate actions

5. Data needs to be kept for a three month period following any project implementation before application for LEED. Since this is the first application for LEED EB in the City, the process may take two to three years to complete.
6. Application for LEED EB rating.

The City might want to become a member of the USGBC, given that it has two LEED buildings in the pipeline and has a recommendation to require LEED standards for private developments. The fee is \$500 for local governments with populations under 500,000. Membership indicates support of the USGBC goals and objectives and provides access to supporting materials, discounts on books, trainings, project registrations and submittals and offers the opportunity for individual staff to join the Northern California Chapter as members.

The following table identifies areas that could be considered in pursuing a LEED rating and which provide opportunities to earn LEED credits and points. This represents a quick analysis and should the city decide to pursue LEED EB for the City Hall, a more detailed analysis should be done with the collaboration of the LEED EB project team. A quick look at the LEED credits that are attainable or only in need of documentation indicates that the City Hall could achieve a LEED EB Silver rating without major costs and could strive for a LEED Gold. The cost of achieving either of these is largely dependent on choices that are made during the process – large ticket items include landscaping renovation and HVAC redesign, which the City may want to pursue anyway for energy and water conservation goals.

Many LEED actions are focused on developing policies and best practices that would have minor costs associated with them (for instance, changing to less toxic cleaning products may increase cost of cleaning products). The City would need to formalize as policy and perhaps refine some of the practices that are already being done and expand on some other practices. For instance, LEED EB calls for stormwater management. The City currently imposes regulations on new construction; setting a policy for municipal properties expands the intention of the stormwater requirements to include already existing sites.

General LEED EB Potential Credits

LEED Points	General Actions	Description
3	Water – internal fixtures	City Hall has not yet been upgraded to all low flow fixtures and offers opportunities for relatively low cost upgrades. If the janitorial sinks are used, these should be included in upgrades. Watch for additional water credits in the next version of LEED EB.
5	Landscaping	If landscaping changes were considered as part of this project, there are many opportunities for reducing water use as well as designing an educational exterior.
4 – 7 (plus 2 energy points)	Redesign of HVAC system	Many credits are related to thermal comfort standards and ventilation standards, some of which might not be needed in City Hall. There is a lot of potential here to make the building more sustainable.
5 – 7	Environmental Purchasing Policy	These credits are often difficult to earn; however, implementation of the EPP recommendations earlier in this document will cover the prerequisites and set up the City for achieving many of the credits. The City already purchases

		furniture from salvage, which will help considerably.
5	Green Cleaning	Policies and practices that cover green cleaning and indoor pest controls should be easy to implement, if not already done.
0	USGBC membership	Cost is \$500. Benefits include discounts, access to information and opportunity for staff to participate more fully in green building events.
Of these LEED points, 12 have not been included in the initial estimation of feasibility (which produced 42 points), and so these 12 are additional available points.		

Waste Water Treatment Plant

The Waste Water Treatment Plant (WWTP) is the biggest source of CO₂ emissions in City facilities and operations. Over 3,465 metric tons of CO₂ emissions are the result of the WWTP operations, which represent a third of the City's CO₂. This number includes the WWTP electricity and natural gas usage, electricity for the main pumps at the Dale Avenue Pump Station and diesel usage for backup generators. It does not include fuel for WWTP trucks and other smaller pumps related to waste water in the City.

The Public Works Department established reduction in energy usage as a performance objective for the WWTP. Regular reviews have been conducted and have identified opportunities to reduce energy usage throughout the WWTP including the Dale Avenue Pump Station. Significant improvements have been made including improved pump operation at the Dale Avenue pump station and a variety of improvements within the Plant. There is an opportunity to upgrade the aeration basin equipment and diffusers to current technology and produce some significant savings. However, beyond improvement of the aeration process most other possible actions can be expected to produce relatively small reductions in energy usage. As a result, the amount of energy required to convey and treat the City's wastewater should not be expected to change dramatically. Meeting the *Climate Action Plan* energy goals will, therefore, be very difficult using only energy reduction strategies given the significant share that the WWTP represents of all energy used by the City and the limited opportunities for energy reduction there.

The City may be more successful in changing energy usage and CO₂ emissions by pursuing energy production rather than energy reduction strategies at the WWTP. Cogeneration capacity has been incorporated into the current WWTP upgrades that could produce almost half of the energy required to process the City's wastewater using methane gas produced in the treatment process. (Note: methane produced and used or flared by the WWTP is not included in the footprint.) In addition, recent evaluation of photovoltaic options at all City facilities identified the WWTP as one of the sites with the greatest potential for successful solar implementation. These and other energy production options will need to be evaluated in terms of both energy production potential as well as on-going maintenance and reliability expectations. However, energy production strategies at the WWTP may be the best way to meet the *Climate Action Plan* energy goals.

The City is reviewing options to reduce the hydraulic flows through the WWTP during storm events. A consultant team was selected and will begin work in January 2008. The objective of the study will be to identify the best method(s) to reduce hydraulic flow to the WWTP. This could include reducing inflow and infiltration within the collection system or creation of capacity adjacent to the WWTP to store a portion of the storm related flows. Reducing the flow to the

WWTP may have the added benefit of reducing peak operation energy usage depending on the method(s) selected.

Citywide water conservation programs, as suggested in the *Sustainable Initiatives Plan*, that significantly reduce water consumption within buildings may also reduce the flow to the WWTP and reduce energy costs.

The actions at the WWTP described in this package are the first steps. It will be vital for Public Works to stay informed of innovative and resource efficient solutions that may be developed in the next decades. As discussed above, longer range actions should consider energy production using methane fueled cogeneration or solar energy to provide a renewable source of energy for the process that is, by far, the largest energy consumer within the City organization.

PW Package 3: Wastewater Treatment Plant

Objective	Action	Savings	Schedule
Improve efficiency of Aeration Basins	Upgrade mechanical equipment and diffusers	TBD – Unknown at this time, but could be significant	Within FY 08/10 Business Plan
Reduce energy use and methane emissions	Investigate use of Co-generation or other energy production options		Establish plan by end of FY 08/09
Reduce flow	Water Conservation Program for residential and small business	TBD – Part of pilot program – BE 1 in Sustainability Initiatives Plan	2008/2009

Future Projects – Pilot Programs

Two key areas with the potential to produce significant CO₂ reductions will need to be approached gradually to insure that the solutions are viable. Pilot or test programs will allow the city to be cautious about incorporating these changes, while keeping in mind that the significant amount of CO₂ reduction make them worth exploring.

The first is to switch the streetlights to LED lights, which are both costly and may be quite energy efficient. The list of streetlights is being updated and verified by Public Works and PG&E and may result in additional streetlights being added to the baseline. (These types of issues will all resolve during the implementation of the Utilities Manager Pro program.) Energy use will be tracked by Public Works and a pilot program will be implemented when appropriate in regards to savings, rebates and energy reduction. Street lights are a challenge to the Climate Action Plan because they are not metered and utility costs are traditionally charged by fixture, not by actual energy used. Therefore savings may not be able to be accurately tracked.

The second project involves the Marina Lagoon, which is a storm water storage facility. Water is pumped from the Lagoon into the Bay using large diesel pumps at the Marina Lagoon pump station. These use almost 50,000 gallons of diesel per year and switching to B20 would reduce CO₂ by over 70 metric tons a year. Even greater savings would be realized by switching to 100% biodiesel. At this time, Public Works will need to explore the possibility of switching and what equipment changes might be necessary. (B20 is assumed to save 15% of CO₂(e) emissions.)

PW Package 4: Pilot Programs

Action	kWh saved	Diesel gallons switched to B20	Metric Tons of CO ₂ Saved	Cost (after rebate)	Annual Savings from energy reduction	Schedule
Switch 7500 streetlights to LED	*		*	*	*	
Switch Lagoon pumps to B20		49,624	71.06	no additional cost		
*Unable to estimate at this time						

Waste and Recycling

The *Sustainable Initiatives Plan* had three recommendations on waste:

1. Achieve 50% measured diversion rate by 2020
2. Achieve maximum (90%) diversion rate by 2050
3. Participate in promoting emerging solutions to health, environmental, and waste management problems caused by consumer products such as Product Stewardship/Extended Producer Responsibility (EPR) and changes in packaging.

Each of these recommendations can be followed in operations and facilities as well as citywide. PW Package 5: Increased Diversion lists the first set of actions to be taken to achieve these objectives.

PW Package 5: Increased Diversion

Objective	Action	Tons Reduced	Metric Tons of CO ₂ Saved	Schedule
50% measured diversion	Update survey of recycling efforts at each City facility and identify and assist facility personnel in reducing their waste stream.			Jan – June 2008
	Work with Parks and Recreation to expand recycling opportunities within the Parks			2008
	Achieve 50% - approximate numbers	475	70	By 2020
Part of citywide recommendations	Pilot study to evaluate effectiveness of trash receptacles that permit recycling in the Downtown and other public places.			June 2008
90% measured diversion	Achieve 90%	1851	277	By 2050
Better Purchasing Choices	Provide expertise to Finance Department and the Environmental Purchasing Policy team to incorporate increased purchasing of recycled materials and to award contracts to companies with take-back programs.			2008
Significant reductions in CO₂; city does not pay for disposal services				

Commuting Alternatives – Trip Reduction

The City of San Mateo is a member of the Peninsula Congestion Relief Alliance (Alliance). This is a Joint Powers Authority with membership of all but one city within San Mateo County. The Alliance provides a variety of trip reduction services and programs. These include rideshare matching, guaranteed ride home, as well as shuttle service administration and marketing. The City of San Mateo currently has three operating shuttles that connect businesses to the Hillsdale or Hayward Park Caltrain Stations. The annual cost of these shuttles is almost \$300,000 and is funded by Bay Area Air Quality Management District (BAAQMD) grants (75%) and a combination of City and private funds (25%). City Hall is served by the Campus Drive shuttle that connects to the Hillsdale Station.

The Alliance is also assisting the City in establishing a Transportation Management Association (TMA) in the rail corridor. The TMA will work with member businesses and residential areas within the Rail Corridor to reduce their trip generation by an average of at least 25 percent.

A staff survey on commute patterns and ideas for influencing commute choices was completed as part of determining the carbon footprint for the City. The most cited suggestions for actions the City could take included:

- Better transit system: safer, more options, better schedules, shuttles from Caltrain (several people do not know of this service) and BART, cleaner SamTrans buses, BART to San Mateo
- Financial incentives: discounted, subsidized or free passes
- Pool vehicles available for city business or personal errands during lunch hour
- Flexibility in work schedules, options to work 9/80 or 4/10 or telecommute
- Bicycle support: more lockers (shorter wait to get one), incentives, the old program where the City provided bikes, safer and more bike lanes, showers
- Better information on available options and potential carpool partners
- Provide child care, school buses or allow children to attend schools near where their parents work

A commute alternative program has associated costs without any direct paybacks. However, options such as flexible hours and financial incentives are considered benefits and can be part of an overall plan to hire and retain good staff. Some options, such as providing sufficient bike lockers or offering awards to workgroups that increase use of commute options, are minimal, one-time costs and can provide the context for change. Working with the Credit Union to offer discount loans for environmental vehicles could require only staff time to work collaboratively and/or to apply for grants.

Increased attention to disseminating the information requires some staff time and support of the Peninsula Traffic Congestion Alliance. The survey clearly illustrated the lack of knowledge of already-existing options. A possible series of objectives for a commute program, starting with the easiest follows:

1. **Staff engagement in developing solutions to reduce the amount of driving to and at work.** The first step is to engage the existing Climate Action Team (CAT), a group of employees from all departments with interest in commute options, in helping to advertise the current commuter options and plan improvements. The CAT is a great resource for knowing how to get information to all the staff in their departments, which will require a range of approaches.
2. **A well-informed work force with 100% of employees aware of commute options that apply to their situations and who understand the importance of choosing low impact modes of commuting.** Utilizing the help of the CAT and asking the departmental directors to inform their employees will start the process. Creating a buzz around this issue, in the same way that one develops a marketing strategy for a product, will require several different approaches.
 - a. A culture developed within the City where CO₂ reduction is given attention on all aspects of work and in which each director is informed and offers a consistent message to their staff on the importance of CO₂ reduction and its relation to commutes and driving in general.
 - b. Contests or specific targeted programs with lots of internal outreach to create interest.
3. **A set of incentives to change behavior.** This first set can be developed from the information gathered in the survey and best practices, with the help of the Peninsula Traffic Congestion Alliance.
4. **A continual feedback loop of surveys and incentive or program development to change behavior.** This will provide an understanding of what the city can do to help employees change their driving habits and choose alternative commute options.
5. **A metric that measures the success of any program and informs step 4.** This will allow for evaluation of efforts and costs to ensure that the most effective practices are continued and those that do not change behavior are improved or replaced.

One possibility is a simple AVR (average vehicle ridership) metric of trips to work/#automobiles. A related statistic could be AVR normalized by number of employees. It might be interesting to calculate this statistic now, then inspire and offer incentives for everyone to try different commute options in one specific week (bike to work week?) and track the results. This would produce a picture of what it is possible to achieve and might motivate people to try something different.

6. **Increased efforts and budget to reduce commute impacts after the easier solutions are implemented.**

PW Package 6: Commutes

Objective	Action	Metric Tons of CO ₂ Saved	Schedule
Reduce Single Occupancy commuting by 20%	Achieve target by following commute program actions		2020
Establish stronger commute incentives program	<p>Increase outreach efforts: Every Director becomes conversant with all options and ensures that all department employees are aware of their options.</p> <p>Commute options are discussed regularly at staff meetings and in staff memos and newsletters.</p>		2008
	Implement carpool incentives: preferred parking spots, gas coupons, etc.		2008
	Add bike lockers to meet demand at all facilities.		2008
	Evaluate feasibility of offering flexible scheduling and/or telecommuting options.		2008
	Reinstate commuter checks as a benefit for employees and to encourage alternative commute modes.		
	Provide shared pool cars at needed locations for business and personal use during lunch hours, for the use of people who take public transit or carpool to work.		
	Establish a Spare the Air Day program that alerts staff and gets their agreement to choose alternative transportation on that day.	2.7 tonnes per Save the Air /day	2008
	Establish a program for staff who live within 5 miles of their workplace to encourage them to walk or bicycle, and survey this subgroup to determine what incentives would be most effective.		2008
	Survey the staff regarding commute choices and incentives at least every two years and do targeted surveys on subsets to determine why options are or are not being used, in order to develop more effective incentives.		
Reduce single occupancy travel while at work.	Identify trips between city facilities or for lunch taken by employees that are ≤ one mile and survey for incentives that would actively encourage staff to walk or bike.		
	Encourage staff carpooling for offsite meetings and whenever possible.		
Reduce fuel consumption and emissions for trips that start or end in San Mateo	Ensure high mpg vehicles are available for longest trips.		
	Develop Fleet Policy to ensure the right vehicles are being purchased and used for the needed work.		2008 (see Finance)

	Collaborate with Credit Union and Finance Department to provide discounted loans to employees for high mpg automobile purchases.		
	Provide personal bicycles to city staff who commit to riding to work regularly.		
	Have Peninsula Congestion Alliance provide free one hour bike and pedestrian safety workshop at jobsite.		
Engage Staff in finding solutions and participating in commute options. Make this a part of the City culture.	Create a contest between workgroups for highest percentage of employees using alternative transportation and offer substantial award to that workgroup OR set goals of 20% and 40% for each workgroup and offer substantial awards when a workgroup meets the target.		
* could be significantly less if majority of change occurs on shorter commutes and choice of options to implement may affect this. This number is highly speculative, based on average CO ₂ emissions per commute of 4,484 lbs./year as determined by commuter survey, but commute lengths vary widely.			

Putting it All Together

There are three categories of actions in this *Climate Action Plan*, all of which need to be implemented in order for the City to reach the 2020 emission reduction goals. These are:

1. Actions that will enable the City to measure, set benchmarks, track and assess performance on different sources of CO₂.
2. Actions that will reduce CO₂ emissions.
3. Other sustainable actions.

Better Data

This category includes:

- Implementing the Utility Manager Pro system
- Adding information to the warehouse inventory program
- Developing a metric to track commuting impacts

These actions will allow management to better evaluate how the City is doing in regards to energy and resource use and will provide information for grant applications.

Recommendation: The City should establish a solid measuring and reporting system for all sources of CO₂ from City operations and facilities in order to provide management with the tools and data needed to achieve the CO₂ emission reduction goals.

CO₂ Reduction Projects

Most of this Plan is about actions that will reduce CO₂ emissions. Potential CO₂ reduction amounts have been identified for some of the actions; others will definitely produce reductions but need more analysis and planning. Here are the reductions that we can estimate:

Department	Project (by 2020)	Estimated CO₂ metric ton reduction
Finance	20% fleet emission reductions	296
Information Technology	Virtualization and implementation of CPM	38
Parks and Recreation	Synthetic Turf – 3 fields	2
Public Works	Package 1: efficiency projects	144
	Lagoon Pumps to B20	71
	50% waste diversion	70
	20% reduction in commute emissions	390
Total		1011
	2020 Emission Reduction Goal – metric tons	876
	2050 Goal	> 8,655

In addition to the projects in the chart, which are measurable, all of the following actions will help reduce City's carbon footprint:

- Continuing efforts to reduce energy demands or replace energy sources at Waste Water Treatment Plant.
- New municipal buildings designed and built to LEED Silver or higher certification.
- Departments working with the Fleet Manager to choose high mpg vehicles, smaller vehicles, fewer vehicles and alternative fuel vehicles.
- LEED EB for City Hall and the policies and best practices that this would introduce.
- Individual staff members making better choices regarding their commutes.
- Alternative work schedules and telecommuting options.
- The addition of energy reduction strategies to the Environmental Purchasing Policy, such as specifications regarding equipment that uses electricity, natural gas or fuels.
- On site composting and mulching of green waste.
- Employees changing driving habits when using City vehicles: carpooling, choosing to use the most efficient vehicle that will get the job done, not idling, driving the speed limit and not driving aggressively.
- Establishing a dedicated source of funding to pay for big efficiency projects.

The City can reach the basic 2020 goal if it implements the programs that are identified, monitors its progress on an annual basis and increases efforts as needed to meet the targets.

The following actions will contribute to the overall global reduction of CO₂ through reducing resource extraction, manufacturing and transportation emissions that are related to purchasing:

- Using double-sided copies when electronic files are not sufficient. Ensuring that ALL printers can print double sided and that this option is enabled.
- Reducing the use of disposable items at meetings.
- Choosing products made with recycled content or increasing the amount of recycled content.
- Choosing local products whenever possible.
- Any actions that reduce waste generation (known as source reduction).
- Choosing less toxic, less complex, more natural items.
- Updating the EPP to reflect these choices.

Recommendation: Take the steps that are needed to accomplish the suggested actions in the Climate Action Plan. These steps may include further investigation, pilot studies or life cycle analysis before final decisions are made to move forward.

Other Sustainable Actions

This Plan is focused on preventative actions – actions that will reduce the City’s contributions to the CO₂ in the atmosphere. However, some climate change is inevitable and although science is uncertain of the specific local changes, the predictions include rising sea levels, altered and more intense weather events, changing ecosystems, and less snow pack in the Sierras, which means less available water. Another effect will be health issues associated with rising temperatures and reduced air quality.

How will these results of climate change affect City operations and facilities? What adaptive actions should be considered that will prepare the City for these changes? The key issue that is related to the operations and facilities is water consumption. Water issues are already affecting the Peninsula – the low snow pack for two years, the intense storm system that has just moved through the City in early January and the lack of water in local reservoirs. Water availability is an issue that affects the entire community and the City has two roles to address this: the community role of ensuring adequate supply and infrastructure for residents and businesses and the agency role of conservation in civic buildings and landscaping. The community role was covered in the *Sustainable Initiatives Plan*. The actions identified in this *Climate Action Plan* that will help to lower water usage include:

- An analysis of water consumption by building, after the Utilities Management Program is operational.
- Landscaping projects that require less water and demonstrate drought tolerant landscaping, xeriscaping, and native plants.
- Artificial turf projects for playing fields.
- Review of water used by fire hydrant checks.
- LEED EB for City Hall – water credits and landscaping related credits.
- Municipal buildings designed and built to LEED Silver standards, with special attention to water conservation potential.

- The Environmental Purchasing Policy changes, with attention to purchasing low flow fixtures and nontoxic cleaning supplies (less toxicity in the waste water).

Reducing water consumption through these actions can be considered as both adaptive and preventative strategies. The City is preparing for less available water but is also reducing the energy needed to transport and treat water. San Mateo County water has a low energy intensity compared to many places in California because it is mostly transported by gravity from Hetch Hetchy to San Mateo. But there is still a connection between water and energy; for instance, this report discusses the energy needs of the Waste Water Treatment Plant.

Designs for city landscaping that handle stormwater runoff from big storms and provide drought tolerant landscaping to handle long dry spells are an adaptive strategy to prepare for more intense weather patterns.

The *Sustainable Initiatives Plan* recommends incorporating adaptive measures into the General Plan, creating water conservation programs for the community and including climate change awareness in future planning and programs. Although this *Climate Action Plan* has focused on the issues relating directly to facilities and internal operations, the awareness of potential impacts of global warming is needed across all actions and decisions.

Recommendation: Create a staff position that is responsible for emerging water issues and water conservation, both in facilities and in the community and incorporate an understanding of adaptive strategies into future planning and programs, as recommended in the Sustainable Initiatives Plan.

Education

The City has a responsibility to educate residents and businesses in addition to its staff. Some of the actions in this plan discuss ways in which to inform the public, such as providing demonstration gardens, library events, recreation classes and an example of environmental stewardship in how meetings are run and business is done.

Even more key is educating the staff on sustainable actions and issues. This Plan suggests that Human Resources could offer or coordinate some trainings for staff that address specific topics. Public Works will need to provide education on commute options. And staff will need to know what is expected of them in regards to energy and water usage, driving and recycling.

Opportunities to participate in programs is only part of the picture; the other piece is behavioral change. Having consistent messages on expectations – everything from *print double-sided to turn off your lights when you go home* are important and should not be overlooked while focusing on program implementation.

The City has a Climate Action Team, made up of individuals from each of the departments, and put together to help inform the process of developing these reports. At the Team's one formal meeting, a discussion on how to reach all the employees in the county was quite informative.

Because of the different departmental structures and cultures, more than one method is needed. Here are some of the ideas that were shared:

- Use the Citygram to communicate more on these issues. Staff read it because it comes with their paychecks.
- Use the Intranet to create community – to share commutes, event information and reuse tips – inspire some dialogue.
- Put reminder facts focused on sustainable actions on the Intranet, similar to the questions that are changed frequently.
- Talk about climate action at all levels of staff meetings – 5 to 10 minutes to talk about the importance of action and what the City is doing.
- Provide a brief or cheat sheet so that the information will get from the top down to all staff.
- Create water cooler signs – or for elevators, copy machines and action boards – to remind people of what they need to do. Keep them fresh and fun.
- Run an interdepartmental contest to engage everyone in taking action.
- Highlight what the City is doing for the public, make sure it is in the news, add signs like biodiesel signs on the vehicles. Share the accomplishments, so everyone can be proud of the work being done.

Another idea is to have someone who is engaged in many aspects of sustainable action within the City write a blog on the Intranet. Many employees are interested in what is being decided in the City and want to see their departments become more environmentally friendly. Many have made suggestions and helped to frame ideas that are in this Plan. Keeping them informed about the actions that the City is taking will create ambassadors into the community who can talk with enthusiasm about the City's efforts. Good press is satisfying to the staff as well as the citizens.

Recommendation: Assign responsibility for internal communications about sustainability and climate action efforts and develop a regular pattern of keeping people informed and engaged.

Continuing Sustainability Efforts

This Plan highlights a group of actions that will start reducing CO₂ emissions, but to achieve the long term goals, the City will need to integrate sustainability and climate action into its culture. The best way to accomplish this is to participate in programs that are set up to create continual improvement and forward progress. One program is the LEED EB certification that was discussed earlier, which addresses a whole range of environmental concerns.

Pathway to Sustainable Cities, a new program being developed by Sustainable San Mateo County (SSMC) addresses the entire sustainability picture – environment, economy and equity. With a collaborative process, SSMC will build upon their annual Indicators Report and facilitate the development of a model roadmap for a sustainable city. The program will deliver the framework, tools, resources, and implementation assistance to enable San Mateo County cities to measure and track their progress towards environmental, economic and social sustainability.

Other nonprofits are picking up specific sustainability issues and working with the cities to support and assist with educational, purchasing and other actions. The City is encouraged to stay engaged!

Summary & Recommendations

The City can achieve substantial reductions in CO₂ emissions and conserve water by starting with the recommendations in this Plan. In summary, the following actions are recommended:

1. *Establish a solid measuring and reporting system for all sources of CO₂ from City operations and facilities in order to provide management with the tools and data needed to achieve the CO₂ emission reduction goals.*
 - a. *Implement Utility Manager Pro*
 - b. *Update warehouse database to include more information*
 - c. *Establish metrics for programs as needed*
2. *Take the steps that are needed to accomplish the suggested actions in the Climate Action Plan. These steps may include further investigation, pilot studies or life cycle analysis before final decisions are made to move forward.*
 - a. *Finance: Develop Fleet Policy*
 - b. *Finance: Establish EPP Group to review and update EPP*
 - c. *Finance: Establish Energy Water Efficiency Fund when appropriate*
 - d. *Finance: Prepare a soft fleet order for Plug-In Hybrids*
 - e. *Library: Develop a process for sharing information on the Main Library's energy and water use with the public as an educational tool*
 - f. *Parks & Rec: Investigate landscaping decisions discussed in this Plan and develop proposals for switching some lawn areas to demonstration landscaping projects*
 - g. *Parks & Rec: Research synthetic turf options for soccer fields*
 - h. *Parks & Rec: work with Public Works to review green waste handling and to increase recycling opportunities*
 - i. *Parks & Rec: investigate options for programs that support energy efficiency, water conservation, increased bicycling and other sustainability topics*
 - j. *Public Works: Do all actions in PW Package 1: Facilities and Parking Garages – Efficiency*
 - k. *Public Works: Commit to doing a LEED EB process for City Hall*
 - l. *Public Works: Do HVAC design study for City Hall (in PW package 2)*
 - m. *Public Works: Do all actions in PW Package 3: Waste Water Treatment Plant*
 - n. *Public Works: Finish analysis on actions in PW Package 4: Pilot Programs (LED street lights and converting lagoon pumps to B20)*
 - o. *Public Works: Prioritize programs needed to achieve the goals of PW Packages 5 and 6 (waste diversion and commute options), and implement as appropriate to accomplish goals*

3. *Create a staff position that is responsible for emerging water issues and water conservation, both in facilities and the community and incorporate an understanding of adaptive strategies into future planning and programs, as recommended in the Sustainable Initiatives Plan.*
 - a. *Do water analysis on facilities after data is readily available*
 - b. *Work with Parks & Recreation and Public Works Departments to reduce landscaping and building water consumption.*
 - c. *Fire: Check hydrant usage to ensure testing uses only what is necessary*
4. *Assign responsibility for internal communications about sustainability and climate action efforts and develop a regular pattern of keeping people informed and engaged.*
 - a. *Focus on changing the behaviors discussed in this document and informing staff of opportunities to participate in reducing CO₂ emissions and helping the City to set an example of environmental stewardship.*

Overall, the City is in a strong position to reduce its CO₂ emissions and to take steps to become more proactive on environmental and climate related issues. Adopting the recommendations in the *Sustainable Initiatives Plan* and the *Climate Action Plan for Operations & Facilities* will certainly invigorate the City's new climate action and sustainability efforts.

Appendix

Appendix includes:

1. City EPP and Implementation Plan
2. Environmental Purchasing Action List (2007)
3. CIWMB Recycled Content Criteria sheet
4. Plug In Hybrid Sample Resolution
5. Benefits of USGBC membership
6. LEED EB Checklist for City Hall

City of San Mateo Environmental Preferable Purchasing Policy and Implementation Plan

Adopted January 3, 2006

INTRODUCTION

The goal of the City of San Mateo Environmentally Preferable Purchasing Policy (EPP) is to encourage and increase the use of environmentally preferred products and services within the City of San Mateo organization. By including environmental considerations in purchasing decisions, the City will demonstrate practices that promote and improve public and worker health, conserve natural resources, and reward environmentally conscious manufacturers, while remaining fiscally responsible.

This City of San Mateo Environmental Purchasing Plan (Plan) facilitates implementation of the City of San Mateo Environmental Purchasing Policy (EPP). This Plan may be amended from time to time.

POLICY

1. The City shall promote the use of environmentally preferable products in its acquisition of goods and services.
2. Environmental factors to be considered in the purchase of products and services shall include, but may not be limited to, pollutant release; waste generation, recycled content; energy consumption; depletion of natural resources; and potential impact on human health and the environment.
3. The City shall consider reusable products, recycled content products, and recyclable products where practicable when making purchases of such products.
4. This policy authorizes a 10% price preference for processed chlorine-free paper for photocopy-grade and janitorial paper products. This policy does not mandate the purchase of such products.
5. The City shall seek opportunities to enhance markets for environmentally preferable products through employee education; adopt innovative product standards, specifications, and contracts; and embark on cooperative ventures with other jurisdictions.
6. The City shall encourage pilot testing by City staff of environmentally preferable products;
7. Nothing contained in this policy shall be construed as requiring procurement of products that do not perform adequately for their intended use, exclude adequate competition, or are not available at a competitive price when compared to other available products.

DEFINITIONS

Environmentally Preferable Product: A product that has a lesser or reduced negative impact on human health and the environment when compared to a competing product that serves the same purpose. This comparison may consider raw materials acquisition, production, manufacturing, packaging, distribution, reuse, operation, maintenance, and disposal of the product. The term includes, but is not limited to, recyclable products, recycled products, and reusable products.

Practicable: Satisfactory in performance and available at a fair and competitive price.

Recyclable Product: A product that, after its intended use, can demonstrably be diverted from the City's solid waste stream for use as a raw material in the manufacture of another product, preferably higher value uses.

Recycled Product: A product manufactured from a waste material that has been recovered or diverted from the waste stream. Recycled material may be derived from post-consumer waste, industrial scrap, manufacturing waste and/or other waste that otherwise would not have been utilized.

Reusable Product: A product that can be used several times for an intended use before being discarded.

Source Reduction: Any action that reduces the overall amount or toxicity of waste created. Because source reduction actually prevents the generation of waste in the first place, it comes before other management options that deal with trash after it is already generated.

COORDINATION AND IMPLEMENTATION

As the designated administrator of solid waste programs, the Public Works Environmental Services Division will facilitate and monitor implementation of the Policy.

Staff will work with representatives from various city departments involved in the purchase of supplies and services. Staff will receive suggestions, conduct research, and propose environmental purchasing initiatives; work with individual departments/division staff to identify opportunities to increase environmental purchasing, coordinate outreach/training for staff, prepare an annual report, and provide general support to maintain the environmental purchasing program.

RESEARCH, PLANNING, AND EDUCATION

Buyers will be encouraged to advance environmental purchasing for their specific operations by initiating pilot studies. Based on the results of the pilot studies, all departments/divisions will be encouraged to use, and encourage their contractors and consultants to use, environmentally preferable products where practicable.

Staff will (1) encourage that contracting procedures do not discriminate against reusable, recycled, or environmentally preferable products without justification; (2) evaluate environmentally preferable products to determine the extent to which they may be used by the city staff and contractors; (3) encourage the specification of designated environmentally preferable products where practicable; and (4) collect data on purchases of designated environmentally preferable products by the City and its contractors and report the findings in an annual report.

EXAMPLE SPECIFICATIONS

City will investigate adoption of purchasing specifications that include, but may not be limited to, the following list of services and non-durable goods.

To the extent practicable:

- Use printing and copy paper products that meet U. S. Environmental Protection Agency (USEPA) guidelines for post consumer recycled fiber.

- Use janitorial paper products that meet USEPA guidelines for post-consumer content.
- Consider use of re-refined motor oil, extended-life motor oils, and/or high performance oil filtration technologies where compatible with equipment warranties. All re-refined oil must be American Petroleum Institute (API) certified.
- Use recycled propylene glycol automotive coolant.
- Avoid janitorial cleaning or disinfecting products that contain ingredients that are identified by USEPA or the National Institute of Occupational Safety and Health as carcinogens, mutagens or teratogens.
- Avoid purchase and phase out use of chlorofluorocarbon containing refrigerants, solvents, and other products to accommodate the Montreal Protocol of Substances that deplete the Ozone Layer, and national requirements.
- Use only detergents that meet EPA standards as “readily biodegradable”. Do not use detergents that contain phosphates.
- Paint shall contain the minimum amount necessary of volatile organic compounds, and shall contain maximum recycled content where practicable.
- Use processed chlorine free or less bleached paper for photocopy-grade paper and janitorial products (in order to help reduce use of products that contribute to the formation of dioxin and furan compounds in their manufacture).
- Avoid use of polyvinyl chloride (PVC) plastics to the extent practicable.
- Ensure that purchased or leased electronic equipment including photocopiers, computers, printers, lighting systems, HVAC, kitchen and laundering appliances, and energy management systems meet USEPA or USDOE energy efficiency standards. Where applicable, ensure that the energy efficiency function remain enabled on all energy efficient equipment.
- Ensure that photocopiers purchased or leased by the City are capable of double-sided copying, except table-top models.
- Avoid products that originate from rainforest hardwood or tropical wood.
- Give preference to products that are produced and are available locally.
- Give preference to products that are reusable and refillable rather than disposable, long-lasting, durable, and which are able to be recycled or composted at the end of their life.
- Encourage vendors to ensure the most effective packaging of products; that packaging be reusable, recyclable, or compostable; and take back and reuse pallets and packaging materials.
- Ensure that pest management services and activities conform to City's Integrated Pest Management Policy.
- Give preference to vendors of outdoor surface cleaning services (e.g. sidewalk, building exteriors, pavement, etc.) that have obtained Bay Area Stormwater Management Agencies Association (BASMAA) pollution prevention certification (or equivalent).
- Utilize landscaping mulch and soil conditioner manufactured from locally generated organic waste.

- Utilize local household hazardous waste product give-away program for exterior water based paint and other products when feasible.
- Avoid purchase of products containing mercury.
- Consider employing “green building” technologies in building construction and renovation.
- Consider the purchase of hybrid or alternative fuel vehicles.

PROMOTION

The City will use appropriate opportunities to communicate with the public about EPP strategies and their benefits. Public outreach venues include, but may not be limited to:

- EPP page on city web site describing City's EPP program and resources for residents and businesses.
- EPP program related information displayed in Public Works display case in City Hall and other appropriate venues
- City-purchased and printed recycled paper products shall be labeled with the standard phrase: "Printed on Recycled Paper."
- Use recycled content paper products for business cards, letterhead stationery, envelopes, business forms, and pertinent documents. All shall be printed, with the standard phrase: "Printed on Recycled / Recyclable Paper", where practicable.
- EPP program Annual Report

CONTRACTOR CONFORMANCE

All City service providers should be requested to conform to minimum recycled-content procurement standards. This request will be applied to contractors and grantees in procuring materials or products to perform services for the City, to produce or provide a work product in the City or on the City's behalf, or to conduct work funded by a grant from the City.

Any RFP or bids for services should request that any proposal submitted to the City shall be printed two-sided on recycled and recyclable paper with removable, reusable bindings or staples, and that contractors producing reports for the City will submit such on post-consumer recycled and recyclable paper.

ANNUAL REPORT

An Environmentally Preferable Purchasing Progress Report will be prepared annually. The report will include the following:

- Summary of environmentally preferable product purchases
- Instances where policy was waived or its requirements found impracticable;
- Barriers to procurement of environmentally preferred alternatives (cost, impracticality, etc.)
- Environmentally preferred products/strategies piloted during the year
- Goals for the following calendar year

Target date for completion of the annual report will be June 30 of the following year.

Environmental Purchasing Action List (2007)

All Departments	Recommended Action
Double-side Copy. Double-side copy whenever practical.	Email reminder to staff; recommend assistance from IT Help Desk if needed.
Double-side printing of Submittals. Request that documents be submitted electronically and/or double-side printed (one hard copy of original document only if practical).	Incorporate requirement into applicable documents (example specification language attached).
Buy Locally. Give preference to products that are produced in Bay Area/California, if known, and that are similar in cost to comparable products.	Keep the principle in mind. Purpose is to support local economies and reduce transportation-related fuel consumption and air emissions.

IT

Double-side Copying. Set up workstations for default double-side copying.	Update any work stations not already configured at next convenient time or upon request.
Energy Efficient Equipment. Prefer products marketed as energy efficient (e.g. "Energy Star") whenever practicable.	Incorporate in purchasing guidance, future purchases and/or lease/service contracts.

Finance (Warehouse)

Letterhead stock PCW content. Purchase letterhead stock with post-consumer waste content.	Provide example(s) to department heads for approval.
Letterhead Stock Note. Order letterhead stock print requests with note "Printed on Recycled Content Paper"	Contingent on approval of recycled content letterhead stock. Locate in center bottom ~ 0.5 inch from bottom.
Chlorine-free Paper. Investigate purchase of paper products that do not use chlorine bleaching in the manufacturing process.	EPP policy allows that City may pay up to 10% more for chlorine free paper over chlorine bleached alternative. Check with current suppliers first. A list of some other suppliers is attached.
Energy Efficient Equipment. Prefer products marketed as energy efficient (e.g. "Energy Star") whenever practicable.	Incorporate in purchasing guidance, future purchases and/or lease/service contracts.
Re-refined Motor Oil. Investigate feasibility of utilizing re-refined motor oil, possible changes in fleet contract terms to allow its use, and availability of free product supplies.	Research feasibility of switching to or supplementing supplies with re-refined oil and availability of free product.

Parks and Recreation	
Compost. Give preference to utilization of free compost available through Allied Waste for landscape maintenance and recommend the same in landscape services agreements.	Determine if quality of product meet potential needs. If so, include requirements in future purchase or service contracts. (Allied will deliver to work site upon City's request.)
PVC Alternatives. Consider alternatives to PVC-containing products in new applications (o.k. for repairs/improvements to existing systems).	Evaluate feasibility of utilizing alternatives to PVC piping in new irrigation systems.

Public Works-Facilities

Halon/HCFC (R-22) Systems. Target all Halon-containing fire suppression systems and HCFC (R-22) refrigeration/cooling systems for replacement.	Identify all existing systems and plan/project future replacement dates.
VOC-containing Products. Identify existing applications of VOC-based paints, coatings and solvents and evaluate alternative products for comparable effectiveness.	Make list of products and applications currently in use, propose pilot tests of product alternatives where feasible.
PVC Alternatives. Consider alternatives to PVC-containing products in new applications (o.k. for repairs/improvements to existing systems).	Identify existing uses of PVC products and evaluate feasibility of utilizing alternative materials in new systems.
Lumber and Wood Products. Avoid purchase of tropical woods and treated softwoods. Utilize salvaged/recycled lumber and 100% recycled plastic lumber if possible.	Identify potential uses of exotic woods and investigate alternatives.
Mercury Thermostats & Switches. Identify all building thermostats and switches that contain mercury and plan/project replacement dates.	Identify all existing systems and plan/project replacement dates.
Energy Efficient Equipment and Appliances. Purchase energy efficient product models (e.g. "Energy Star") whenever practicable.	Incorporate in purchasing guidance, future purchases and/or lease/service contracts.
Pressure Washing. Recommend that city staff or services involved in pressure washing (including spill cleanup) take BASMAA online "Pollution Prevention Program Training for Surface Cleaners"; and consider giving preference to service providers that hold said certification of BASMAA training.	Add to applicable employee individual training plan; consider using to screen prospective service providers.

Public Works-Environmental Section	
<i>Less Toxic Cleaners.</i> Identify existing stocks of janitorial cleaning and disinfection products and investigate conversion to less toxic products where comparably effective products are available.	Screen product using Prop 65 listed compounds, review product alternatives with users of the products, and develop alternative products list to Purchasing and other buyers.
<i>Phosphate-free Cleaners.</i> Identify existing stocks of dishwasher detergent and other industrial cleaners that contain phosphates; and recommend alternative products to Purchasing and other buyers.	Screen products in current use for phosphates, review product alternatives with users of the products, and recommend alternative products to Purchasing and other buyers.
<i>Disposable Product Inventory.</i> Conduct inventory of disposable products that are purchased in quantity and that may have product alternatives that are reusable or refillable make recommendations to Warehouse and other buyers.	Make list of non-recyclable disposable products, and investigate alternatives that can be reused or recycled.
<i>Mercury Fluorescent Lamps.</i> Investigate switching to “very low” mercury content fluorescent lamps.	Conduct const comparison and if economically feasible, conduct a pilot test.
<i>Packing/packaging.</i> Conduct inventory of possible products not presently recycled and investigate source reduction or recycling options.	Coordinate collection and recycling of polystyrene packing peanuts, and monitor regional efforts to recycle other polystyrene packing materials.
<i>Structural Pest Control Services.</i> Instruct pest control service providers to avoid use of persistent pesticides, and recommend that they investigate obtaining ABAG “Eco-Wise Certified” accreditation.	Monitor activities of structural and insect pest control providers, and provide information on “Eco-Wise” program.
<i>Reuse Programs.</i> Evaluate whether staff can utilize County HHW product giveaway program for paints, coatings, cleaners, etc.	Obtain information on products commonly available and evaluate for possible use.

CIWMB: Recycled-Content (Green Procurement) Evaluation Sheet
[up to 15* Points] Possible

Note: individual grant programs may customize this form. Therefore, applicants must complete the form included within the grant application packet.

Instructions: Please complete this evaluation sheet. To increase recycled-content product purchasing and sustainable practices, CIWMB includes this in their grant scoring criteria. Remember to take into account what the entire governing body is purchasing and implementing. (Please see the backside for details.)

Name of Applicant:

Recycled-Content (Green Procurement) purchasing policy Points Possible [3*]

2 Points possible if the policy is adopted during the application period by the applicant or its governing body

Have you adopted a **policy**?

No Yes if yes, date adopted: _____ By: _____ (governing body, executive officer)

With or without an adopted policy	Points Possible [4*]
Evidence of purchasing recycled-content or other sustainable products	0.5 pts per check
Check the recycled-content or other sustainable products you have purchased within the past year:	
<input type="checkbox"/> Paper – copy paper, brochures, flyers, educational materials	<input type="checkbox"/> Retread tires -passenger, truck, bus, trailer, equipment tires
<input type="checkbox"/> Steel - fencing, power tools, automobiles, furniture	<input type="checkbox"/> Solvents - for cleaning heavy equipment, printers, and parts
<input type="checkbox"/> Water based cleaning solutions for printers and equipment	<input type="checkbox"/> Low/no VOC (volatile organic compound) products
<input type="checkbox"/> Plastic - lumber, carpet, signs, promotional items	<input type="checkbox"/> Glass - windows, fiberglass insulation, beakers
<input type="checkbox"/> Tire-derived - flooring, mats, playground and track surfaces	<input type="checkbox"/> Re-refined oil - lubricating oils for motors and engines
	<input type="checkbox"/> Low energy use – lights, appliances, and equipment
	<input type="checkbox"/> Less toxic chemicals, pesticides, and cleaners

With or without an adopted policy **Points Possible [4*]**

Evidence of performing sustainable **practices** 0.5 pts per check

(Sustainable practices are practices that result in resource conservation and/or efficiency).

Check the sustainable practices you have performed within the past year:

<input type="checkbox"/> Renewable energy	<input type="checkbox"/> Sustainable construction	<input type="checkbox"/> Water-efficiency
<input type="checkbox"/> Grasscycling	<input type="checkbox"/> Operations and maintenance, xeriscaping, natural fertilizers	<input type="checkbox"/> Other, please list
<input type="checkbox"/> Energy efficiency	<input type="checkbox"/> Demolition debris recycling	
<input type="checkbox"/> Composting/mulching		(innovative examples on backside)

With or without an adopted policy **Points Possible [4*]**

Evaluation - Evaluate the policy and efforts by addressing positive and negative features.

Positive:

Negative:

* For this form example, 100 points is used to determine grant eligibility. Recycled-Content (Green Procurement) accounts for 15% of the points determining eligibility. Each Grant Program determines point distribution.

Overview

Purchasing recycled-content products creates markets for the materials that local and state governments divert in complying with Assembly Bills 939 and 75. If these diversion efforts are to be successful, adequate markets must exist for the diverted material. It is arguable that no better market development tool exists than purchasing recycled-content products that contain the diverted materials.

In addition, implementing other sustainable practices reduces the amount of waste being generated in the first place. To help ensure that resources are conserved and markets exist for the recycled-content products, at the June 18-19, 2002 meeting the Board approved revisions to the Grant Scoring Criteria to reflect that a minimum of fifteen percent of the points used to determine eligibility be used to evaluate “Evidence of a Recycled-Content Purchasing Policy or Directive” in competitive grant applications. With Board approval, this can be lowered to ten percent.

This evaluation sheet was designed to assist grant programs in applying the Board’s direction. Applicants can receive points for having a policy, purchasing recycled-content products or performing sustainable practices, and self-evaluating their efforts.

In addition to the bottom line market development benefits of “buying recycled” and conserving resources, there are numerous other reasons to promote sustainable practices and the procurement and purchase of recycled-content products by local and state governments. The reasons include:

- Less manufacturing waste and pollution
- A reduction in energy and water consumption
- Reduced reliance on natural resources
- Economic development
- Job creation

Innovative Approaches

Thousands of sustainable products and practices can be purchased and/or implemented. All of which have less environmental impacts than standard products and practices. The possibilities are endless. By allowing applicants to receive points for innovative purchases and practices, we can learn from one another. Here are some innovative approaches that governments, businesses, and households are implementing.

- Require staff to rent alternative fueled vehicles when traveling
- Require that 10% of their fleet be electric vehicles
- Local area networks
- Waterless urinals
- Closed offices on Fridays
- Telecommuting

Sample Procurement Policies are available at: www.ciwmb.ca.gov/BuyRecycled/policies.

Public Contract Code (PCC) 12210: All local and state public agencies shall purchase recycled products instead of non-recycled products, so long as price, quality, and availability are comparable.

PCC 12205: On and after January 1, 2000 at least fifty percent (50%) of State purchases are required to be recycled products.

PCC 12213: All public agencies shall require the bidder to certify the amount of recycled material in all products. No product manufactured with postconsumer or secondary material shall be discriminated against for reason other than function. Recycled-content products are to be preferred over non-recycled-content products.

Plug-In Hybrid Campaign – Sample Resolution

Full information packet is available at:

<http://www.pluginpartners.org/includes/pdfs/PluginPartnersPacket.pdf>

DRAFT CITY or COUNTY RESOLUTION for PLUG-IN CAMPAIGN

WHEREAS, the over-reliance of America on foreign oil has become a growing and serious threat to the economic vitality and national security interest of the United States; and

WHEREAS, automobile emissions are a major contributing factor to global warming and to smog in our cities, which threaten the health of our citizens and the sustainability of our planet; and

WHEREAS, the imbalance between gasoline resources and worldwide demand is escalating gasoline prices at an alarming rate and to levels that overburden commerce, hurt economic growth and cause serious hardship on our citizens; and

WHEREAS, the technology exists today to build a flexible-fuel plug-in hybrid electric automobile that could reduce oil imports, fuel costs to our citizens and our economy and air emissions by dramatic margins; and

WHEREAS, the City (County) of (Name) is partnering with Austin and others of the nation's largest cities, to urge automakers to mass produce plug-in hybrid vehicles for the substantial economical, environmental and strategic reasons outlined; and

WHEREAS, the City (County) of (Name) is officially launching "Plug-In (Name)," a community-wide campaign to promote the mass production of plug-in hybrid vehicles;

NOW, THEREFORE,

BE IT RESOLVED BY THE (City/County/Organization Name):

That the City (County) of (Name) joins the Plug-in Partners National Campaign; and

BE IT FURTHER RESOLVED:

That the (Appropriate Title – e.g., City Manager) is directed to develop a program to encourage the future purchase of flexible-fuel plug-in hybrid vehicles, including fleet orders; and

BE IT FURTHER RESOLVED:

That the City of (Name) makes a commitment to support local, state and federal policies that will promote flexible-fuel plug-in hybrid vehicles; and

BE IT FURTHER RESOLVED:

That the City of (Name) will work with the local government, education, business and environmental community to advocate for the purchase of flexible-fuel plug-in hybrid vehicles.



USGBC Member Benefits

Join USGBC today to enjoy the many benefits of membership that help you stay competitive, grow your business, and make the best contacts in the green building industry.

Take Advantage of Member-Only Discounts

Members enjoy valuable discounts on USGBC and LEED® programs and publications:

- Save at least \$175 per Greenbuild International Conference & Expo registration.
- Save up to \$120 per company attendee at LEED Training Workshops.
- Save \$50 on each purchase of LEED Reference Guides.
- Save \$100 on every LEED AP Exam.
- Save up to \$150 on LEED Project Registration.
- Save up to \$5,000 on LEED Certification Fees.

Get Exclusive Green Building Resources

USGBC connects members to a fantastic array of tools and resources:

- A free subscription to the award-winning GreenSource magazine.
- Access to USGBC Credit Interpretation Rulings (CIRs), a valuable resource when studying for the LEED AP exam, researching product relevance, and evaluating the likelihood of achieving LEED credits.
- Members-only access to a number of online resources and green building data.

Get Involved

Play an active role in advocating for green building issues and helping build consumer awareness:

- Serve on a LEED or USGBC committee to shape the future of LEED and green building.
- Participate in legislative outreach efforts and stay up to date with federal and local government green building programs.
- Attend USGBC advocacy training sessions.
- Become a LEED faculty member and teach LEED workshops in your area.

Build Relationships

Network with other members, gain knowledge about green building, and contribute expertise to the USGBC community:

- Participate in a Member Circle, member-driven exchanges of ideas, resources and information.
- Attend USGBC Member Day, a free event the day before Greenbuild.
- Join the Member to Member (M2M) Exchange, an online discussion forum.
- Make industry-wide contacts beyond your business area.

Get Noticed

Membership sets your organization apart. Identify as a USGBC member:

- Distinguish your company in the marketplace by using the USGBC member logo on your Web site and in your company's marketing materials.
- List your company in USGBC's exclusive online Member Directory.

Don't miss all these great perks. Join now or call 1-800-795-1747 (202-742-3792, outside the U.S.) for more information about membership and benefits.

LEED EB Checklist – City Hall

The following checklist is a quick analysis of LEED credits that the City Hall could earn and/or which would need documentation. The credits that are included in the third (NO) column are not feasible or would require major changes to the building that are not recommended at this time.

LEED for Existing Buildings v.2.0 Registered Building Checklist

Project Name: **Feasibility Study**
Project Address: **City Hall, City of San Mateo**

Yes ? No
8 **4** **2** **Sustainable Sites** **14 Points**

Y	Prereq 1	Erosion & Sedimentation Control	Required
Y	Prereq 2	Age of Building	Required
1	Credit 1.1	Plan for Green Site & Building Exterior Management - 4 specific actions	1
1	Credit 1.2	Plan for Green Site & Building Exterior Management - 8 specific actions	1
1	Credit 2	High Development Density Building & Area	1
1	Credit 3.1	Alternative Transportation - Public Transportation Access	1
1	Credit 3.2	Alternative Transportation - Bicycle Storage & Changing Rooms	1
1	Credit 3.3	Alternative Transportation - Alternative Fuel Vehicles	1
1	Credit 3.4	Alternative Transportation - Car Pooling & Telecommuting	1
1	Credit 4.1	Reduced Site Disturbance - Protect or Restore Open Space (50% of site area)	1
1	Credit 4.2	Reduced Site Disturbance - Protect or Restore Open Space (75% of site area)	1
1	Credit 5.1	Stormwater Management - 25% Rate and Quantity Reduction	1
1	Credit 5.2	Stormwater Management - 50% Rate and Quantity Reduction	1
1	Credit 6.1	Heat Island Reduction - Non-Roof	1
1	Credit 6.2	Heat Island Reduction - Roof	1
1	Credit 7	Light Pollution Reduction	1

Yes ? No
4 **1** **Water Efficiency** **5 Points**

Y	Prereq 1	Minimum Water Efficiency	Required
Y	Prereq 2	Discharge Water Compliance	Required
1	Credit 1.1	Water Efficient Landscaping - Reduce Potable Water Use by 50%	1
1	Credit 1.2	Water Efficient Landscaping - Reduce Potable Water Use by 95%	1
1	Credit 2	Innovative Wastewater Technologies	1
1	Credit 3.1	Water Use Reduction - 10% Reduction	1
1	Credit 3.2	Water Use Reduction - 20% Reduction	1

Yes ? No

10 11 2 Energy & Atmosphere **23 Points**

Y	Prereq 1	Existing Building Commissioning	Required
Y	Prereq 2	Minimum Energy Performance - Energy Star 60	Required
Y	Prereq 3	Ozone Protection	Required
7 2 1	Credit 1	Optimize Energy Performance	1 to 10
		Energy Star Rating - 63	1
		Energy Star Rating - 67	2
		Energy Star Rating - 71	3
		Energy Star Rating - 75	4
		Energy Star Rating - 79	5
		Energy Star Rating - 83	6
	7	Energy Star Rating - 87	7
		Energy Star Rating - 91	8
		Energy Star Rating - 95	9
		Energy Star Rating - 99	10
1	Credit 2.1	Renewable Energy - On-site 3% / Off-site 15%	1
1	Credit 2.2	Renewable Energy - On-site 6% / Off-site 30%	1
1	Credit 2.3	Renewable Energy - On-site 9% / Off-site 45%	1
1	Credit 2.4	Renewable Energy - On-site 12% / Off-site 60%	1
1	Credit 3.1	Building Operation & Maintenance - Staff Education	1
1	Credit 3.2	Building Operation & Maintenance - Building Systems Maintenance	1
1	Credit 3.3	Building Operation & Maintenance - Building Systems Monitoring	1
1	Credit 4	Additional Ozone Protection	1
1	Credit 5.1	Performance Measurement - Enhanced Metering (4 specific actions)	1
1	Credit 5.2	Performance Measurement - Enhanced Metering (8 specific actions)	1
1	Credit 5.3	Performance Measurement - Enhanced Metering (12 specific actions)	1
1	1	Performance Measurement - Emission Reduction Reporting	1
1	Credit 6	Documenting Sustainable Building Cost Impacts	1

Yes ? No

11 2 3 Materials & Resources **16 Points**

Y	Prereq 1.1	Source Reduction & Waste Management - Waste Stream Audit	Required
Y	Prereq 1.2	Source Reduction & Waste Management - Storage & Collection	Required
Y	Prereq 2	Toxic Material Source Reduction - Reduced Mercury in Light Bulbs	Required
1	Credit 1.1	Construction, Demolition & Renovation Waste Management - Divert 50%	1
1	Credit 1.2	Construction, Demolition & Renovation Waste Management - Divert 75%	1
1	Credit 2.1	Optimize Use of Alternative Materials - 10% of Total Purchases	1
1	Credit 2.2	Optimize Use of Alternative Materials - 20% of Total Purchases	1
1	1	Optimize Use of Alternative Materials - 30% of Total Purchases	1
1	Credit 2.4	Optimize Use of Alternative Materials - 40% of Total Purchases	1
1	1	Optimize Use of Alternative Materials - 50% of Total Purchases	1
1	Credit 3.1	Optimize Use of IAQ Compliant Products - 45% of Annual Purchases	1
1	1	Optimize Use of IAQ Compliant Products - 90% of Annual Purchases	1
1	Credit 4.1	Sustainable Cleaning Products & Materials - 30% of Annual Purchases	1
1	Credit 4.2	Sustainable Cleaning Products & Materials - 60% of Annual Purchases	1
1	Credit 4.3	Sustainable Cleaning Products & Materials - 90% of Annual Purchases	1
1	Credit 5.1	Occupant Recycling - Recycle 30% of the Total Waste Stream	1
1	Credit 5.2	Occupant Recycling - Recycle 40% of the Total Waste Stream	1
1	Credit 5.3	Occupant Recycling - Recycle 50% of the Total Waste Stream	1
1	Credit 6	Additional Toxic Material Source Reduction - Reduced Mercury in Light Bulbs	1

Yes ? No

8 6 8

Indoor Environmental Quality

22 Points

Y	Prereq 1	Outside Air Introduction & Exhaust Systems	Required
Y	Prereq 2	Environmental Tobacco Smoke (ETS) Control	Required
Y	Prereq 3	Asbestos Removal or Encapsulation	Required
Y	Prereq 4	PCB Removal	Required
	Credit 1	Outside Air Delivery Monitoring	1
	Credit 2	Increased Ventilation	1
1	Credit 3	Construction IAQ Management Plan	1
1	Credit 4.1	Documenting Productivity Impacts - Absenteeism & Healthcare Cost Impacts	1
	Credit 4.2	Documenting Productivity Impacts - Other Productivity Impacts	1
1	Credit 5.1	Indoor Chemical & Pollutant Source Control - Reduce Particulates in Air System	1
	Credit 5.2	Indoor Chemical & Pollutant Source Control - Isolation of High Volume Copy/Print/Fax Room	1
	Credit 6.1	Controllability of Systems - Lighting	1
	Credit 6.2	Controllability of Systems - Temperature & Ventilation	1
	Credit 7.1	Thermal Comfort - Compliance	1
	Credit 7.2	Thermal Comfort - Permanent Monitoring System	1
	Credit 8.1	Daylight & Views - Daylight for 50% of Spaces	1
	Credit 8.2	Daylight & Views - Daylight for 75% of Spaces	1
	Credit 8.3	Daylight & Views - Views for 45% of Spaces	1
	Credit 8.4	Daylight & Views - Views for 90% of Spaces	1
	Credit 9	Contemporary IAQ Practice	1
1	Credit 10.1	Green Cleaning - Entryway Systems	1
	Credit 10.2	Green Cleaning - Isolation of Janitorial Closets	1
1	Credit 10.3	Green Cleaning - Low Environmental Impact Cleaning Policy	1
1	Credit 10.4	Green Cleaning - Low Environmental Impact Pest Management Policy	1
1	Credit 10.5	Green Cleaning - Low Environmental Impact Pest Management Policy	1
1	Credit 10.6	Green Cleaning - Low Environmental Impact Cleaning Equipment Policy	1

Yes ? No

1 4

Innovation & Design Process

5 Points

	1	Credit 1.1	Innovation in Upgrades, Operation & Maintenance	1
	1	Credit 1.2	Innovation in Upgrades, Operation & Maintenance	1
	1	Credit 1.3	Innovation in Upgrades, Operation & Maintenance	1
	1	Credit 1.4	Innovation in Upgrades, Operation & Maintenance	1
1		Credit 2	LEED™ Accredited Professional	1

Yes ? No

42 24 19

Project Totals (pre-certification estimates)

85 Points

Certified: 32-39 points, Silver: 40-7 points, Gold: 48-63 points, Platinum: 64-85

If you would like more detailed information about LEED EB and the description of the credits that are discussed here, please go to www.usgbc.org/leed/eb to download a more detailed description of the credits.

Many thanks to all City of San Mateo staff for their help in providing data, setting things in motion, editing and commenting on this Plan and being generally helpful and friendly:

And to the City of San Mateo Climate Action Team for their support and efforts:

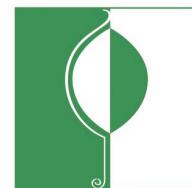
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